Small Business Innovation Research/Small Business Tech Transfer

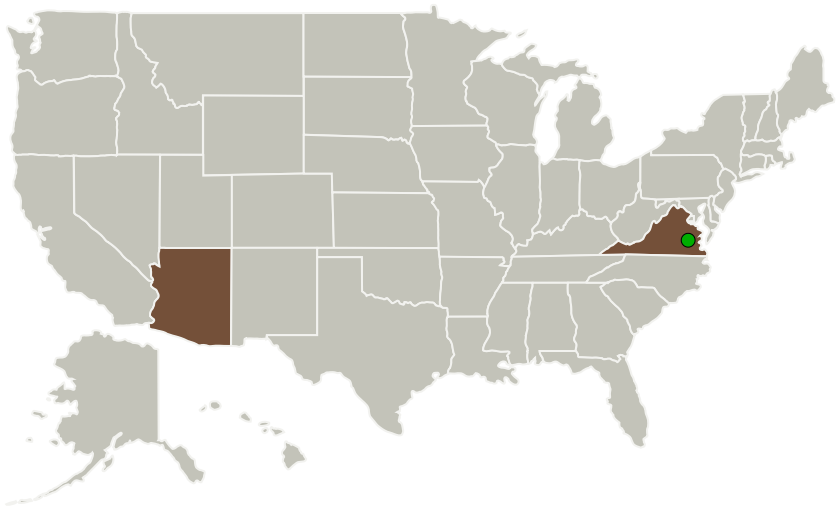
Polarization Maintaining Ho-Doped Fiber Amplifier, Phase I

Completed Technology Project (2016 - 2016)

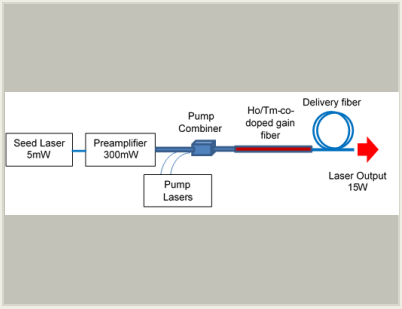
Project Introduction

The laser absorption spectrometer approach offers the potential to provide the high-accuracy carbon dioxide mixing ratio measurements with the vertical and horizontal spatial resolution that is desired by the carbon cycle research community. It is generally agreed that 2.05 micron wavelength absorption band of carbon dioxide can offer good differential absorption optical depth. An amplifier with output power of 15W is needed to burst the output power for airborne and space applications. We propose to develop a high average power polarization maintaining single frequency Ho-doped 2.05 micron wavelength fiber amplifier with output power of 15W by developing innovative radiation hardened Ho/Tm-co-doped silicate glass fiber. In Phase I we will demonstrate radiation hardened Ho/Tm co-doped silicate glass fibers, and PM fiber amplifier with greater than 10W output power.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
AdValue Photonics, Inc.	Lead Organization	Industry Small Disadvantaged Business (SDB)	Tucson, Arizona
Langley Research Center(LaRC)	Supporting Organization	NASA Center	Hampton, Virginia



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Primary U.S. Work Locations	
Arizona	Virginia

Project Transitions

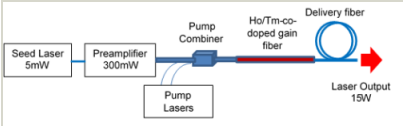
June 2016: Project Start

December 2016: Closed out

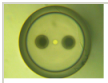
Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/139723)*

Images



Briefing Chart Image
Polarization Maintaining Ho-Doped Fiber Amplifier, Phase I
(https://techport.nasa.gov/image/136446)



Final Summary Chart Image
Polarization Maintaining Ho-Doped Fiber Amplifier, Phase I Project Image
(https://techport.nasa.gov/image/128532)

Organizational Responsibility

Responsible Mission Directorate:
Space Technology Mission Directorate (STMD)

Lead Organization:
AdValue Photonics, Inc.

Responsible Program:
Small Business Innovation Research/Small Business Tech Transfer

Project Management

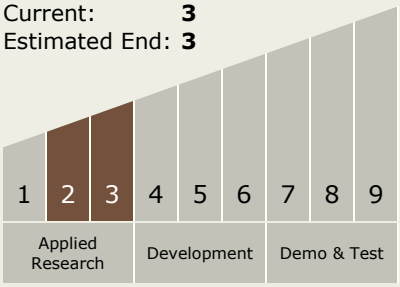
Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Shibin S Jiang

Technology Maturity (TRL)

Start: **2**
Current: **3**
Estimated End: **3**



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Completed Technology Project (2016 - 2016)

Technology Areas

Primary:

- TX08 Sensors and Instruments
  - TX08.3 In-Situ Instruments and Sensors
    - TX08.3.1 Field and Particle Detectors

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System